

# Team Switch – Scholarship database

Abha Barge, Aditi Mahadik,  
Mitali Badamikar

# PROBLEM STATEMENT

Conventionally a student is expected to carry out extensive research across different websites before applying to a scholarship program. We aim to provide a one-stop platform catering to all the needs of the user.

# PROBLEM SCOPING

The project "Scholarship Search Engine" has been developed to eliminate the hardships faced by students while searching for scholarships. We aim to create a free scholarship search platform that connects students to scholarships and financial aid tools, providing them assistance to find the best scholarship that suits their needs by providing various filters and sorting options. Students can add their preferred scholarships to a wish list for future reference. No formal knowledge is needed for the user to use this system



Team Switch –

Data Structures  
used and further  
scope

QUEUES



# QUEUES

Queue is also an abstract data type or a linear data structure in which the first element is inserted from one end called the REAR(also called tail), and the removal of existing element takes place from the other end called as FRONT(also called head) i.e. operations in a queue are performed in FIFO (First In First Out) order.

## ADVANTAGES OF QUEUES:

- A large amount of data can be managed efficiently with ease.
- Operations such as insertion and deletion can be performed with ease.
- They are useful when a particular service is used by multiple consumers.
- They are fast in speed for data inter-process communication.
- They can be used in the implementation of other data structures.

# ARRAYS

# ARRAYS

An array is a collection of items of same data type stored at contiguous memory locations.

## ADVANTAGES OF ARRAYS:

- Efficient access to elements.
- Fast data retrieval.
- Memory Efficiency.
- Versatility
- Easy to Implement



# DICTIONARIES

Dictionaries are used to store data values in key:value pairs. A dictionary is a collection which is changeable and which does not allow duplicates.

# IF-ELSE STATEMENTS

If the simple code of block is to be performed if the condition holds true then the 'if' statement is used. Here the condition mentioned holds true then the code of the block runs otherwise not.

In conditional if Statement the additional block of code is merged as else statement which is performed when if condition is false.

The syntax of `if...else` statement is:

```
if condition:
    # block of code if condition is True

else:
    # block of code if condition is False
```

# FOR LOOP

In Python, the for loop is used to run a block of code for a certain number of times. It is used to iterate over any sequences such as list, tuple, string, etc.

The syntax of the `for` loop is:

```
for val in sequence:  
    # statement(s)
```

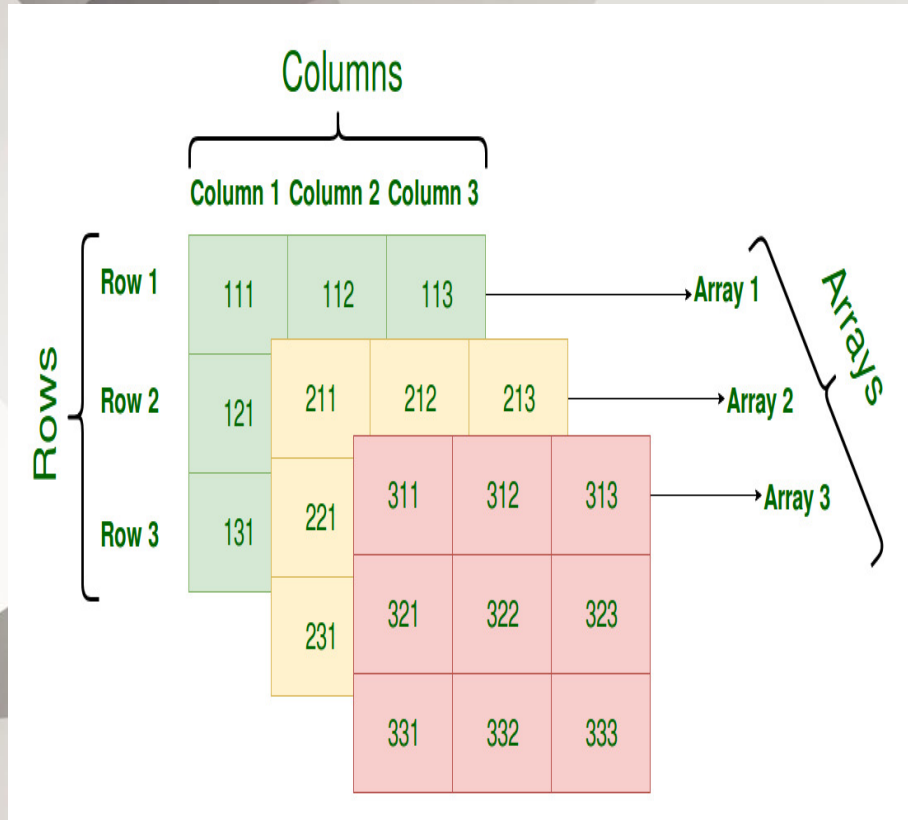
# WHILE LOOP

Python While Loop is used to execute a block of statements repeatedly until a given condition is satisfied. And when the condition becomes false, the line immediately after the loop in the program is executed.

The syntax of `while` loop is:

```
while condition:  
    # body of while loop
```

# Why array ?

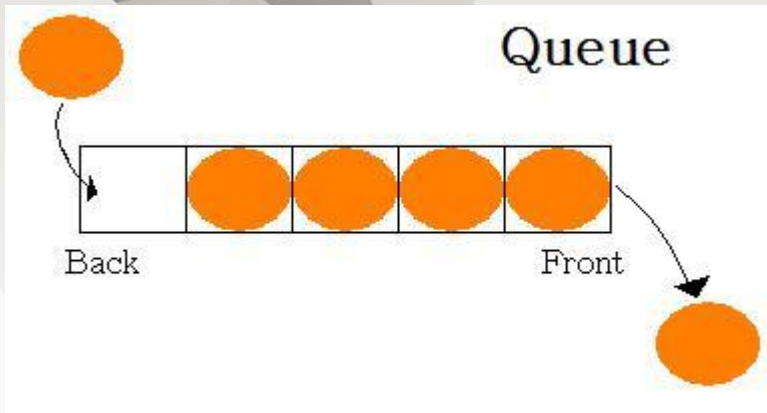


- ◇ Storing hard coded values.
- ◇ Easy access using index.
- ◇ Random access possible.
- ◇ Predefined size known.

`array[3][2][1]`

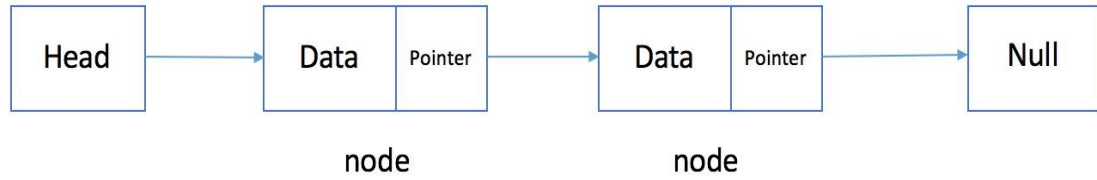


# Why Queues ?

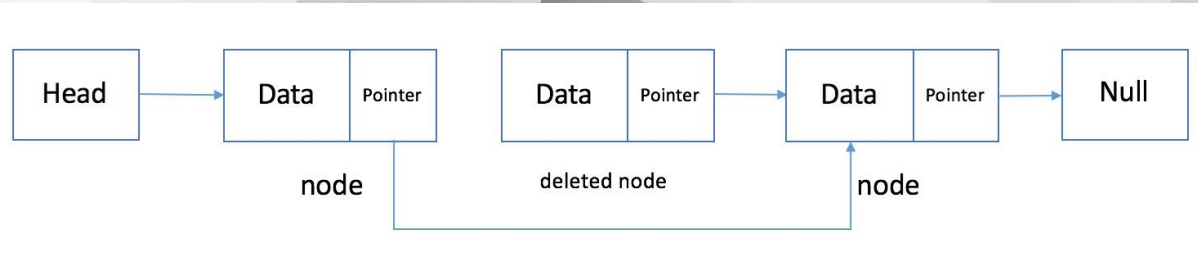


[This Photo](#) by Unknown Author is licensed under [CC BY-SA](#)

- ❖ FIFO (First In First Out) framework.
- ❖ Worst case:
  - time complexity:
    - insert / delete =  $O(1)$
    - Search =  $O(n)$
  - space complexity =  $O(n)$
- ❖ Easier to display, simpler to view.
- ❖ Easier to add elements (enqueue).
- ❖ Easier to clear (dequeue).



[This Photo](#) by Unknown Author is licensed under [CC BY](#)



[This Photo](#) by Unknown Author is licensed under [CC BY](#)

# Why Linked List ?

- ◆ Main function in wish list is insertion and deletion.

- ◆ Worst case

time complexity :

Insert/Delete =  $O(1)$

Search =  $O(n)$

space complexity =  $O(n)$

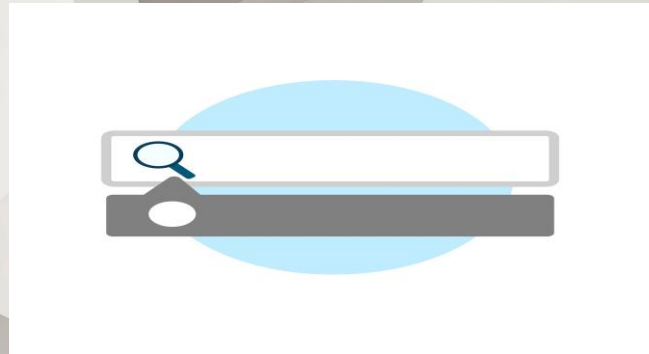
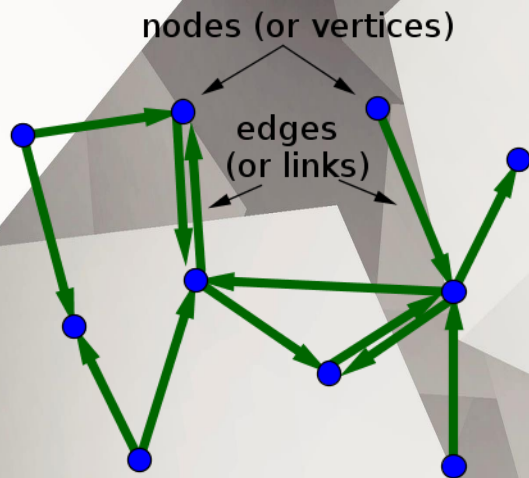
- ◆ Runtime memory allocation.

- ◆ Flexible / dynamic size.

- ◆ No memory wastage.



**Click NOW**  
For More Info!



This Photo by Unknown Author is licensed under  
CC BY-SA-NC

## Further Scope

- Creating nested filters.  
E.g. Sports > Girls > Abv 20 yrs
- Providing direct links to application portals.
- Suggesting similar scholarships (using graphs).
- User search by keywords.
- Develop frontend features.

THANKYOU !!